INDEX TO AUTHORS

A

ADELMAN, W. J., JR. See MULLINS, ADELMAN, and SJODIN, 257

ANDROES, G. M., and CALVIN, MELVIN. Electron paramagnetic resonance in biology, suppl., p. 217

B

BEER, MICHAEL. See KOZINSKI and BEER, 129

BERMAN, MONES, SHAHN, EZRA, and WEISS, MARJORY F. The routine fitting of kinetic data to models: A mathematical formalism for digital computers, 275

———, WEISS, MARJORY F., and SHAHN, EZRA. Some formal approaches to the analysis of kinetic data in terms of linear compartmental systems, 289

BOCKSTAHLER, LARRY E., and KAESBERG, PAUL. The molecular weight and other biophysical properties of bromegrass mosaic virus, 1

BRITTEN, R. J., and MCCARTHY, B. J. The synthesis of ribosomes in *E. coli*. II. Analysis of the kinetics of tracer incorporation in growing cells, 49

———, ———, and ROBERTS, R. B. The synthesis of ribosomes in *E. coli*. IV. The synthesis of ribosomal protein and the assembly of ribosomes, 83

———. See MCCARTHY and BRITTEN, 35

———. See MCCARTHY, BRITTEN, and ROBERTS, 57

BURGI, ELIZABETH. See HERSHEY, BURGI, and INGRAHAM, 123

BURTON, A. C. See PROTHERO and BURTON, 199, 213

BUZZELL, ANNE. Action of urea on tobacco mosaic virus. II. The bonds beween protein subunits, 223

C

CALVIN, MELVIN. See ANDROES and CALVIN, suppl., p. 217

CAVALIERI, LIEBE F., SMALL, THEODORE, and SARKAR, N. The renaturation of denatured DNA, 339

CHANDLER, W. KNOX, FITZHUGH, RICHARD, and COLE, KENNETH S. Theoretical stability properties of a space-clamped axon, 105

CHENG, PING-YAO. Sedimentation and autoradiographic analyses of rapidly labeled ribonucleic acids in human amnion cells, 465

COLE, KENNETH S. The advance of electrical models for cells and axons, suppl., p. 101

COLE, KENNETH S. See CHANDLER, FITZHUGH, and COLE, 105

D

DAVISON, PETER F. See FREIFELDER and DAVISON, 235, 249

E

EISENMAN, GEORGE. Cation-selective glass electrodes and their mode of operation, suppl., p. 259

ENGSTRÖM, ARNE, and LINDSTRÖM, BO. General introduction to Proceedings of the symposia presented at the International Biophysics Congress, suppl., p. v

ENOMOTO, S., and KRIMM, S. Elastic moduli of helical polypeptide chain structures, 317

F

FITZHUGH, RICHARD. Computation of impulse initiation and saltatory conduction in a myelinated nerve fiber, 11

———. See CHANDLER, FITZHUGH, and COLE, 105

FREIFELDER, DAVID, and DAVISON, PETER F. Hyperchromicity and strand separation in bacterial DNA, 249

——— and ———. Studies on the sonic degradation of deoxyribonucleic acid, 235

FUJIMURA, ROBERT, and KAESBERG, PAUL. The adsorption of bacteriophage ϕX174 to its host, 433

G

GERSTEIN, G. L. See RODIECK, KIANG, and GERSTEIN, 351

GIERER, A. Structure and replication of tobacco mosaic virus. Contents of paper reported by Robley C. Williams, suppl., p. 5

GREEN, M. H. See SAGIK, GREEN, HAYASHI, and SPIEGELMAN, 409

H

HAYASHI, M. See SAGIK, GREEN, HAYASHI, and SPIEGELMAN, 409

HAYNES, ROBERT H. The viscosity of erythrocyte suspensions. A review of theory, 95

HERSHEY, A. D., BURGI, ELIZABETH, and INGRAHAM, LAURA. Sedimentation coefficient and fragility under hydrodynamic shear as measures of molecular weight of the DNA of phage T5, 423

I

INGRAHAM, LAURA, See HERSHEY, BURGI, and INGRAHAM, 423

K

KAESBERG, PAUL. See BOCKSTAHLER and KAESBERG, 1

———. See FUJIMURA and KAESBERG, 433

KATCHALSKY, A. and KEDEM, O. Thermodynamics of flow processes in biological systems, suppl., p. 53

KEDEM, O. See KATCHALSKY and KEDEM, suppl., p. 53

KEMPNER, E. S., and MILLER, J. H. Alteration of carbon metabolism by a base analog, 327

KIANG, NELSON Y.-S. See PEAKE and KIANG, 23

———. See RODIECK, KIANG, and GERSTEIN, 351

KOZINSKI, ANDRZEJ W., and BEER, MICHAEL. Effect of concentration on the formation of molecular hybrids from T_4 DNA, 129

KRIMM, S. See ENOMOTO and KRIMM, 317

L

LEVINE, R. P., and PIETTE, L. H. An investigation of electron spin resonance in wild type *Chlamydomonas reinhardi* and mutant strains having impaired photosynthesis, 369

LEWIS, HAZEL LEAH. See PERSON and LEWIS, 451

LIEBMAN, PAUL A. *In situ* microspectrophotometric studies on the pigments of single retinal rods, 161

LINDSTRÖM, BO. See ENGSTRÖM and LINDSTRÖM, suppl., p. v

LONGUET-HIGGINS, H. C. Quantum mechanics and biology, suppl., p. 207

M

MAURO, ALEXANDER. Space charge regions in fixed charge membranes and the associated property of capacitance, 179

MCCARTHY, B. J., and BRITTEN, R. J. The synthesis of ribosomes in *E. coli*. I. The incorporation of C^{14}-uracil into the metabolic pool and RNA, 35

———, ———, and ROBERTS, R. B. The sythesis of ribosomes in *E. coli*. III. Synthesis of ribosomal RNA, 57

———. See BRITTEN and MCCARTHY, 49

———. See BRITTEN, MCCARTHY, and ROBERTS, 83

MILLER, J. H. See KEMPNER and MILLER, 327

MOROWITZ, HAROLD J. See SCHWAN and MOROWITZ, 395

MULLINS, L. J., ADELMAN, W. J., JR., and SJODIN, R. A. Sodium and potassium ion effluxes from squid axons under voltage clamp conditions, 257

N

NOBLE, D. The voltage dependence of the cardiac membrane conductance, 381

P

PEAKE, WILLIAM T., and KIANG, NELSON Y.-S. Cochlear responses to condensation and rarefaction clicks, 23

PERSON, STANLEY, and LEWIS, HAZEL LEAH. Effects of decay of incorporated H^3-thymidine on bacteria, 451

PIETTE, L. H. See LEVINE and PIETTE, 369

PROTHERO, J. W., and BURTON, A. C. The physics of blood flow in capillaries. II. The capillary resistance to flow, 199

——— and ———. III. The pressure required to deform erythrocytes in acid citrate–dextrose, 213

R

RABINOWITCH, EUGENE. See TOMITA and RABINOWITCH, 483

RALL, WILFRID. Electrophysiology of a dendritic neuron model, suppl., p. 145

REICHARDT, WERNER. Nervous integration in the facet eye, suppl., p. 121

ROBERTS, R. B. See BRITTEN, MCCARTHY, and ROBERTS, 83

———. See MCCARTHY, BRITTEN, and ROBERTS, 57

RODIECK, R. W., KIANG, NELSON Y.-S., and GERSTEIN, G. L. Some quantitative methods for the study of spontaneous activity of single neurons, 351

ROSENBLITH, WALTER A. Introduction to symposium on Mathematical models of biophysical mechanisms, suppl., p. 99

S

SAGIK, B. P., GREEN, M. H., HAYASHI, M., and SPIEGELMAN, S. Size distribution of "informational" RNA, 409

SARKAR, N. See CAVALIERI, SMALL, and SARKAR, 339

SCHEIDER, WALTER, 501

SCHWAN, HERMAN P., and MOROWITZ, HAROLD J. Electrical properties of the membranes of the pleuropneumonia-like organism A 5969, 395

SHAHN, EZRA. See BERMAN, SHAHN, and WEISS, 275

———. See BERMAN, WEISS, and SHAHN, 289

SJODIN, R. A. See MULLINS, ADELMAN, and SJODIN, 257

SMALL, THEODORE. See CAVALIERI, SMALL, and SARKAR, 339
SOLOMON, A. K. Ion transport in single cell populations, suppl., p. 79
———. Preface to Proceedings of the symposia presented at the International Biophysics Congress, suppl., p. vii
SPIEGELMAN, S. See SAGIK, GREEN, HAYASHI, and SPIEGELMAN, 409
STENT, GUNTHER S. A short epistemology of bacteriophage multiplication, suppl., p. 13
SUTHERLAND, SIR GORDON. Introduction to symposium on Emerging techniques in biophysics, suppl., p. 205

T

TEORELL, TORSTEN. Excitability phenomena in artificial membranes, suppl., p. 27
TOMITA, GIITI, and RABINOWITCH, EUGENE. Excitation energy transfer between pigments in photosynthetic cells, 483
TOWNES, C. H. Optical masers and their possible applications to biology, suppl., p. 325

U

UTTLEY, A. M. Properties of plastic networks, suppl., p. 169

W

WEISS, MARJORY F. See BERMAN, SHAHN, and WEISS, 275
———. See BERMAN, WEISS, and SHAHN, 289
WILLIAMS, ROBLEY C. Introduction to symposium on Molecular aspects of viral replication, suppl., p. 3
———. See GIERER, suppl., p. 5
WOLKENSTEIN, M. V. The theory of cooperative processes as the foundation of molecular biophysics, suppl., p. 189

Y

YAMAMOTO, WILLIAM S. Transmission of information by the arterial blood stream with particular reference to carbon dioxide, 143

INDEX TO SUBJECTS

A

Acid citrate–dextrose, pressure required to deform erythrocytes in, 213
———, deoxyribonucleic, bacterial, hyperchromicity and strand separation in, 249
———, deoxyribonucleic, denatured, renaturation, 339
———, deoxyribonucleic, phage T5, sedimentation coefficient and fragility under hydrodynamic shear as measures of molecular weight, 423
———, deoxyribonucleic, sonic degradation, 235
———, deoxyribonucleic, T_4, effect of concentration on formation of molecular hybrids from, 129
———ribonucleic, informational, size distribution, 409
———ribonucleic, and metabolic pool, in *Escherichia coli*, incorporation of C^{14}-uracil into, 35
———, ribonucleic, ribosomal, synthesis in *Escherichia coli*, 57
Acids, ribonucleic, rapidly labeled, in human amnion cells, sedimentation and autoradiographic analyses, 465
Amnion cells, human, sedimentation and autoradiographic analyses of rapidly labeled ribonucleic acids in, 465
Analog, base, alteration of carbon metabolism by, 327
Arterial blood stream, transmission of information by, with particular reference to carbon dioxide, 143
Autoradiographic and sedimentation analyses of rapidly labeled ribonucleic acids in human amnion cells, 465
Axon, space-clamped, theoretical stability properties, 105
Axons and cells, advance of electrical models for, suppl., p. 101
———, squid, sodium and potassium ion effluxes from, under voltage clamp conditions, 257

B

Bacteria, effects of decay of incorporated H^3-thymidine on, 451
Bacterial deoxyribonucleic acid, hyperchromicity and strand separation in, 249
Bacteriophage multiplication, short epistemology, suppl., p. 13
——— T5, deoxyribonucleic acid, sedimentation coefficient and fragility under hydrodynamic shear as measures of molecular weight, 423
——— ϕX174, adsorption to host, 433
Biological systems, thermodynamics of flow processes in, suppl., p. 53
Biology, electron paramagnetic resonance in, suppl., p. 217
———, possible applications of optical masers to, suppl., p. 325
———, and quantum mechanics, suppl., p. 207
Biophysical properties and molecular weight of bromegrass mosaic virus, 1
Biophysics, molecular, theory of cooperative processes as foundation, suppl., p. 189
Blood flow in capillaries, physics, 199, 213
———, stream, arterial, transmission of information by, with particular reference to carbon dioxide, 143
Bromegrass mosaic virus, molecular weight and other biophysical properties, 1

C

Capacitance, space charge regions in fixed charge membranes and associated property of, 179
Capillaries, physics of blood flow, 199, 213
Carbon dioxide, transmission of information by arterial blood stream with particular reference to, 143
——— metabolism, alteration by base analog, 327
Carbon-14, uracil labeled with, incorporation into metabolic pool and ribonucleic acid in *Escherichia coli*, 35
Cardiac. *See* Heart.
Cation-selective glass electrodes, mode of operation, suppl., p. 259
Cell, single, populations, ion transport in, suppl., p. 79
Cells, amnion, human, sedimentation and autoradiographic analyses of rapidly labeled ribonucleic acids in, 465
——— and axons, advance of electrical models for, suppl., p. 101
———, *Escherichia coli*, growing, analysis of tracer incorporation kinetics, 49
———, photosynthetic, excitation energy transfer between pigments in, 483

Chain structures, polypeptide, helical, elastic moduli, 317
Chlamydomonas reinhardi, wild type, and mutant strains having impaired photosynthesis, electron spin resonance in, 369
Citrate, acid, and dextrose, pressure required to deform erythrocytes in, 213
Clicks, condensation and rarefaction, cochlear responses to, 23
Cochlear responses to condensation and rarefaction clicks, 23
Compartmental systems, linear, formal approaches to kinetic data analysis in terms of, 289
Computers, digital, mathematical formalism for, routine fitting of kinetic data to models, 275
Concentration effect on formation of molecular hybrids from T_4 deoxyribonucleic acid, 129
Condensation and rarefaction clicks, cochlear responses to, 23
Conductance, cardiac membrane, voltage dependence, 381
Conduction, saltatory, and impulse initiation in myelinated nerve fiber, computation, 11

D

Decay of incorporated H^3-thymidine, effects on bacteria, 451
Degradation, sonic, of deoxyribonucleic acid, 235
Dendritic neuron model, electrophysiology, suppl., p. 145
Deoxyribonucleic acid, bacterial, hyperchromicity and strand separation in, 249
—— acid, denatured, renaturation, 339
—— acid, phage T5, sedimentation coefficient and fragility under hydrodynamic shear as measures of molecular weight, 423
—— acid, sonic degradation, 235
—— acid, T_4, effect of concentration on formation of molecular hybrids from, 129
Dextrose and acid citrate, pressure required to deform erythrocytes in, 213
Digital computers, mathematical formalism for, routine fitting of kinetic data to models, 275

E

Elastic moduli of helical polypeptide chain structures, 317
Electrical models for cells and axons, advance of, suppl., p. 101
—— properties of membranes of pleuropneumonia-like organism A 5969, 395
Electrodes, glass, cation-selective, mode of operation, suppl., p. 259
Electron paramagnetic resonance in biology, suppl., p. 217
—— spin resonance in wild type *Chlamydomonas reinhardi* and mutant strains having impaired photosynthesis, 369
Electrophysiology of dendritic neuron model, suppl., p. 145
Energy transfer, excitation, between pigments in photosynthetic cells, 483
Epistemology, short, of bacteriophage multiplication, suppl., p. 13
Erythrocyte suspensions, viscosity, review of theory, 95
Erythrocytes in acid citrate–dextrose, pressure required to deform, 213
Escherichia coli, synthesis of ribosomes in, 35, 49, 57, 83
Excitability phenomena in artificial membranes, suppl., p. 27
Excitation energy transfer between pigments in photosynthetic cells, 483
Eye, facet, nervous integration in, suppl., p. 121

F

Facet eye, nervous integration in, suppl., p. 121
Fiber, nerve, myelinated, computation of impulse initiation and saltatory conduction in, 11
Flow, blood, in capillaries, physics, 199, 213
—— processes in biological systems, thermodynamics, suppl., p. 53

G

Glass electrodes, cation-selective, mode of operation, suppl., p. 259

H

Heart membrane conductance, voltage dependence, 381
Helical polypeptide chain structures, elastic moduli, 317
Hybrids, molecular, from T_4 deoxyribonucleic acid, effect of concentration on formation, 129
Hydrodynamic shear, sedimentation coefficient and fragility as measures of molecular weight of deoxyribonucleic acid of phage T5 under, 423
Hydrogen-3 thymidine, incorporated, decay, effects on bacteria, 451
Hyperchromicity and strand separation in bacterial deoxyribonucleic acid, 249

I

Impulse initiation and saltatory conduction in myelinated nerve fiber, computation, 11

International Biophysics Congress, general introduction to symposia, suppl., p. v
—— Biophysics Congress, preface, suppl., p. vii
Ion effluxes, sodium and potassium, from squid axons under voltage clamp conditions, 257
—— transport in single cell populations, suppl., p. 79

K

Kinetic data, analysis in terms of linear compartmental systems, formal approaches, 289
—— data, routine fitting to models, mathematical formalism for digital computers, 275
Kinetics of tracer incorporation in growing *Escherichia coli* cells, analysis, 49

L

Letter to the Editor, 501

M

Man, amnion cells, sedimentation and autoradiographic analysis of rapidly labeled ribonucleic acids in, 465
Masers, optical, and their possible applications to biology, suppl., p. 325
Mathematical formalism for digital computers, routine fitting of kinetic data to models, 275
—— models of biophysical mechanisms, introduction to symposium, suppl., p. 99
Membrane conductance, cardiac, voltage dependence, 381
Membranes, artificial, excitability phenomena in, suppl., p. 27
—— fixed charge, in space charge regions and associated property of capacitance, 179
——, pleuropneumonia-like organism A 5969, electrical properties, 395
Metabolic pool and ribonucleic acid, in *Escherichia coli*, incorporation of C^{14}-uracil into, 35
Metabolism, carbon, alteration by base analog, 327
Microspectrophotometric studies, *in situ*, on pigments of single retinal rods, 161
Model, neuron, dendritic, electrophysiology, suppl., p. 145
Models, electrical, for cells and axons, advance of, suppl., p. 101
——, routine fitting of kinetic data to, mathematical formalism for digital computers, 275
Moduli, elastic, of helical polypeptide chain structures, 317
Molecular aspects of viral replication, introduction to symposium, suppl., p. 3
—— biophysics, hybrids from T_4 deoxyribonucleic acid, effect of concentration on formation, 129
—— biophysics, theory of cooperative processes as foundation, suppl., p. 189
—— weight of deoxyribonucleic acid of phage T5, sedimentation coefficient and fragility under hydrodynamic shear as measures of, 423
—— weight and other biophysical properties of bromegrass mosaic virus, 1
Mosaic virus, bromegrass, molecular weight and other biophysical properties, 1
—— virus, tobacco, structure and replication, suppl., p. 5
—— virus, tobacco, urea action on, bonds between protein subunits, 223
Mutant strains having impaired photosynthesis and wild type *Chlamydomonas reinhardi*, election spin resonance in, 369
Myelinated nerve fiber, computation of impulse initiation and saltatory conduction in, 11

N

Nerve fiber, myelinated, computation of impulse initiation and saltatory conduction in, 11
Nervous integration in facet eye, suppl., p. 121
Networks, plastic, properties, suppl., p. 169
Neuron model, dendritic, electrophysiology, suppl., p. 145
Neurons, single, spontaneous activity, quantitative methods for study, 351
Nucleic acid, deoxyribo-, bacterial, hyperchromicity and strand separation in, 249
—— acid, deoxyribo-, denatured, renaturation, 339
—— acid, deoxyribo-, phage T5, sedimentation coefficient and fragility under hydrodynamic shear as measures of molecular weight, 423
—— acid, dexoyribo-, sonic degradation, 235
—— acid, deoxyribo-, T_4, effect of concentration on formation of molecular hybrids from, 129
—— acid, ribo-, informational, size distribution, 409
—— acid, ribo-, and metabolic pool, in *Escherichia coli*, incorporation of C^{14}-uracil into, 35
—— acid, ribo-, ribosomal, synthesis in *Escherichia coli*, 57
—— acids, ribo-, rapidly labeled, in human amnion cells, sedimentation and autoradiographic analyses, 465

O

Optical masers and their possible applications to biology, suppl., p. 325
Organism A 5969, pleuropneumonia-like, membranes, electrical properties, 395

P

Paramagnetic resonance, electron, in biology, suppl., p. 217
Phage. *See* Bacteriophage.
Photosynthetic cells, excitation energy transfer between pigments in, 483
——, impaired, electron spin resonance in wild type *Chlamydomonas reinhardi* and mutant strains having, 369
Physics of blood flow in capillaries, 199, 213
Physiology, electro-, of dendritic neuron model, suppl., p. 145
Pigments in photosynthetic cells, excitation energy transfer between, 483
—— of single retinal rods, *in situ* microspectrophotometric studies, 161
Plastic networks, properties, suppl., p. 169
Pleuropneumonia-like organism A 5969, membranes, electrical properties, 395
Polypeptide chain structures, helical, elastic moduli, 317
Potassium and sodium ion effluxes from squid axons under voltage clamp conditions, 257
Pressure required to deform erythrocytes in acid citrate–dextrose, 213
Protein, ribosomal, synthesis in *Escherichia coli*, and assembly of ribosomes, 83
—— subunits of tobacco mosaic virus, bonds between, 223

Q

Quantum mechanics and biology, suppl., p. 207

R

Radiographic, auto- and sedimentation analyses of rapidly labeled ribonucleic acids in human amnion cells, 465
Rarefraction and condensation clicks, cochlear responses to, 23
Resistance, capillary, to blood flow, 199
Resonance, electron, paramagnetic, in biology, suppl., p. 217
——, electron spin, in wild type *Chlamydomonas reinhardi* and mutant strains having impaired photosynthesis, 369
Retinal rods, single, pigments, *in situ* microspectrophotometric studies, 161
Ribonucleic acid, deoxy-, bacterial, hyperchromicity and strand separation in, 249
—— acid, deoxy-, denatured, renaturation, 339
Ribonucleic acid, deoxy-, phage T5, sedimentation coefficient and fragility under hydrodynamic sheer as measures of molecular weight, 423
—— acid, deoxy-, sonic degradation, 235
—— acid, deoxy-, T_4, effect of concentration on formation of molecular hybrids from, 129
—— acid, informational, size distribution, 409
—— acid, and metabolic pool, in *Escherichia coli*, incorporation of C^{14}-uracil into, 35
—— acid, ribosomal, synthesis in *Escherichia coli*, 57
—— acids, rapidly labeled, in human amnion cells, sedimentation and autoradiographic analyses, 465
Ribosomes, synthesis in *Escherichia coli*, 35, 49, 57, 83
Rods, retinal, single, pigments, *in situ* microspectrophotometric studies, 161

S

Saltatory conduction and impulse initiation in myelinated nerve fiber, computation, 11
Sedimentation and autoradiographic analyses of rapidly labeled ribonucleic acids in human amnion cells, 465
—— coefficient and fragility under hydrodynamic shear as measures of molecular weight of deoxyribonucleic acid of phage T5, 423
Shear, hydrodynamic, sedimentation cofficient and fragility as measures of molecular weight of deoxyribonucleic acid of phage T5 under, 423
Sodium and potassium ion effluxes from squid axons under voltage clamp conditions, 257
Sonic degradation of deoxyribonucleic acid, 235
Space charge regions in fixed charge membranes and associated property of capacitance, 179
Space-clamped axon, theoretical stability properties, 105
Spectrophotometric studies, micro-, *in situ*, on pigments of single retinal rods, 161
Spin resonance, electron, in wild type *Chlamydomonas reinhardi* and mutant strains having impaired photosynthesis, 369
Squid axons, sodium and potassium ion effluxes from, under voltage clamp conditions, 257
Stability properties, theoretical, of space-clamped axon, 105

T

Techniques, emerging, in biophysics, introduction to symposium, suppl., p. 205
Thermodynamics of flow processes in biological systems, suppl., p. 53

Thymidine labeled with H^3, incorporated, decay of, effects on bacteria, 451
Tobacco mosaic virus, structure and replication, suppl., p. 5
—— mosaic virus, urea action on, bonds between protein subunits, 223
Tracer incorporation in growing *Escherichia coli* cells, analysis, 49
Transmission of information by arterial blood stream with particular reference to carbon dioxide, 143
Transport, ion, in single cell populations, suppl., p. 79

U

Uracil labeled with C^{14}, incorporation into metabolic pool and ribonucleic acid in *Escherichia coli*, 35
Urea action on tobacco mosaic virus, bonds between protein subunits, 223

V

Virus, bromegrass mosaic, molecular weight and other biophysical properties, 1
——, tobacco mosaic, structure and replication, suppl., p. 5
——, tobacco mosaic, urea action on, bonds between protein subunits, 223
Viscosity of erythrocyte suspensions, review of theory, 95
Voltage clamp conditions, sodium and potassium ion effluxes from squid axons under, 257
—— dependence of cardiac membrane conductance, 381

W

Weight, molecular, deoxyribonucleic acid of phage T5, sedimentation coefficient and fragility under hydrodynamic shear as measures of, 423
——, molecular, and other biophysical properties of bromegrass mosaic virus, 1

CONTENTS

NUMBER 1, JANUARY, 1962

THE MOLECULAR WEIGHT AND OTHER BIOPHYSICAL PROPERTIES OF BROMEGRASS MOSAIC VIRUS. *Larry E. Bockstahler and Paul Kaesberg* 1

COMPUTATION OF IMPULSE INITATION AND SALTATORY CONDUCTION IN A MYELINATED NERVE FIBER. *Richard FitzHugh* 11

COCHLEAR RESPONSES TO CONDENSATION AND RAREFACTION CLICKS. *William T. Peake and Nelson Y.-S. Kiang* 23

THE SYNTHESIS OF RIBOSOMES IN *E. coli*. I. THE INCORPORATION OF C^{14}-URACIL INTO THE METABOLIC POOL AND RNA. *B. J. McCarthy and R. J. Britten* 35

THE SYNTHESIS OF RIBOSOMES IN *E. coli*. II. ANALYSIS OF THE KINETICS OF TRACER INCORPORATION IN GROWING CELLS. *R. J. Britten and B. J. McCarthy* 49

THE SYNTHESIS OF RIBOSOMES IN *E. coli*. III. SYNTHESIS OF RIBOSOMAL RNA. *B. J. McCarthy, R. J. Britten, and R. B. Roberts* 57

THE SYNTHESIS OF RIBOSOMES IN *E. coli*. IV. THE SYNTHESIS OF RIBOSOMAL PROTEIN AND THE ASSEMBLY OF RIBOSOMES. *R. J. Britten, B. J. McCarthy, and R. B. Roberts* 83

THE VISCOSITY OF ERYTHROCYTE SUSPENSIONS. A REVIEW OF THEORY. *Robert H. Haynes* 95

NUMBER 2, PART 1, MARCH, 1962

THEORETICAL STABILITY PROPERTIES OF A SPACE-CLAMPED AXON. *W. Knox Chandler, Richard FitzHugh, and Kenneth S. Cole* 105

EFFECT OF CONCENTRATION ON THE FORMATION OF MOLECULAR HYBRIDS FROM T_4 *DNA. Andrzej W. Kozinski and Michael Beer* 129

TRANSMISSION OF INFORMATION BY THE ARTERIAL BLOOD STREAM WITH PARTICULAR REFERENCE TO CARBON DIOXIDE. *William S. Yamamoto* 143

In Situ MICROSPECTROPHOTOMETRIC STUDIES ON THE PIGMENTS OF SINGLE RETINAL RODS. *Paul A. Liebman* 161

SPACE CHARGE REGIONS IN FIXED CHARGE MEMBRANES AND THE ASSOCIATED PROPERTY OF CAPACITANCE. *Alexander Mauro* 179

THE PHYSICS OF BLOOD FLOW IN CAPILLARIES. II. THE CAPILLARY RESISTANCE TO FLOW. *J. W. Prothero and A. C. Burton* 199

THE PHYSICS OF BLOOD FLOW IN CAPILLARIES. III. THE PRESSURE REQUIRED TO DEFORM ERYTHROCYTES IN ACID CITRATE–DEXTROSE. *J. W. Prothero and A. C. Burton* 213

ACTION OF UREA ON TOBACCO MOSIAC VIRUS. II. THE BONDS BETWEEN PROTEIN SUBUNITS. *Anne Buzzell* 223

NUMBER 2, PART 2, MARCH, 1962

GENERAL INTRODUCTION. *Arne Engström and Bo Lindström* v

PREFACE. *A. K. Solomon* vii

206828

Molecular Aspects of Viral Replication

INTRODUCTION. *Robley C. Williams* 3
STRUCTURE AND REPLICATION OF TOBACCO MOSAIC VIRUS, presented by *A. Gierer.* Contents of paper reported by *Robley C. Williams* 5
A SHORT EPISTEMOLOGY OF BACTERIOPHAGE MULTIPLICATION. *Gunther S. Stent* 13

Membrane Biophysics

EXCITABILITY PHENOMENA IN ARTIFICIAL MEMBRANES. *Torsten Teorell* 27
THERMODYNAMICS OF FLOW PROCESSES IN BIOLOGICAL SYSTEMS. *A. Katchalsky and O. Kedem* 53
ION TRANSPORT IN SINGLE CELL POPULATIONS. *A. K. Solomon* 79

Mathematical Models of Biophysical Mechanisms

INTRODUCTION. *Walter A. Rosenblith* 99
THE ADVANCE OF ELECTRICAL MODELS FOR CELLS AND AXONS. *Arma Virumque Cano. Kenneth S. Cole* 101
NERVOUS INTEGRATION IN THE FACET EYE. *Werner Reichardt* 121
ELECTROPHYSIOLOGY OF A DENDRITIC NEURON MODEL. *Wilfrid Rall* 145
PROPERTIES OF PLASTIC NETWORKS. *A. M. Uttley* 169
THE THEORY OF COOPERATIVE PROCESSES AS THE FOUNDATION OF MOLECULAR BIOPHYSICS. *M. V. Wolkenstein* 189

Emerging Techniques in Biophysics

INTRODUCTION. *Sir Gordon Sutherland* 205
QUANTUM MECHANICS AND BIOLOGY. *H. C. Longuet-Higgins* 207
ELECTRON PARAMAGNETIC RESONANCE IN BIOLOGY. *G. M. Androes and Melvin Calvin* 217
CATION-SELECTIVE GLASS ELECTRODES AND THEIR MODE OF OPERATION. *George Eisenman* 259
OPTICAL MASERS AND THEIR POSSIBLE APPLICATIONS TO BIOLOGY. *C. H. Townes* 325

NUMBER 3, MAY, 1962

STUDIES ON THE SONIC DEGRADATION OF DEOXRIBONUCLEIC ACID. *David Freifelder and Peter F. Davison* 235
HYPERCHROMICITY AND STRAND SEPARATION IN BACTERIAL DNA. *David Freifelder and Peter F. Davison* 249
SODIUM AND POTASSIUM ION EFFLUXES FROM SQUID AXONS UNDER VOLTAGE CLAMP CONDITIONS. *L. J. Mullins, W. J. Adelman, Jr., and R. A. Sjodin* 257
THE ROUTINE FITTING OF KINETIC DATA TO MODELS: A MATHEMATICAL FORMALISM FOR DIGITAL COMPUTERS. *Mones Berman, Ezra Shahn, and Marjory F. Weiss* 275
SOME FORMAL APPROACHES TO THE ANALYSIS OF KINETIC DATA IN TERMS OF LINEAR COMPARTMENTAL SYSTEMS. *Mones Berman, Majory F. Weiss, and Ezra Shahn* 289

NUMBER 4, JULY, 1962

ELASTIC MODULI OF HELICAL POLYPEPTIDE CHAIN STRUCTURES. *S. Enomoto and S. Krimm* 317

ALTERATION OF CARBON METABOLISM BY A BASE ANALOG. *E. S. Kempner and J. H. Miller* 327

THE RENATURATION OF DENATURED DNA. *Liebe F. Cavalieri, Theodore Small, and N. Sarkar* 339

SOME QUANTITATIVE METHODS FOR THE STUDY OF SPONTANEOUS ACTIVITY OF SINGLE NEURONS. *R. W. Rodieck, Nelson Y.-S. Kiang, and G. L. Gerstein* 351

NUMBER 5, SEPTEMBER, 1962

AN INVESTIGATION OF ELECTRON SPIN RESONANCE IN WILD TYPE *Chlamydomonas reinhardi* AND MUTANT STRAINS HAVING IMPAIRED PHOTOSYNTHESIS. *R. P. Levine and L. H. Piette* 369

THE VOLTAGE DEPENDENCE OF THE CARDIAC MEMBRANE CONDUCTANCE. *D. Noble* 381

ELECTRICAL PROPERTIES OF THE MEMBRANE OF THE PLEUROPNEUMONIA-LIKE ORGANISM A 5969. *Herman P. Schwan and Harold J. Morowitz* 395

SIZE DISTRIBUTION OF "INFORMATIONAL" RNA. *B. P. Sagik, M. H. Green, M. Hayashi, and S. Spiegelman* 409

NUMBER 6, NOVEMBER, 1962

SEDIMENTATION COEFFICIENT AND FRAGILITY UNDER HYDRODYNAMIC SHEAR AS MEASURES OF MOLECULAR WEIGHT OF THE DNA OF PHAGE T5. *A. D. Hershey, Elizabeth Burgi, and Laura Ingraham* 423

THE ADSORPTION OF BACTERIOPHAGE ϕX174 TO ITS HOST. *Robert Fujimura and Paul Kaesberg* 433

EFFECTS OF DECAY OF INCORPORATED H^3-THYMIDINE ON BACTERIA. *Stanley Person and Hazel Leah Lewis* 451

SEDIMENTATION AND AUTORADIOGRAPHIC ANALYSES OF RAPIDLY LABELED RIBONUCLEIC ACIDS IN HUMAN AMNION CELLS. *Ping-Yao Cheng* 465

EXCITATION ENERGY TRANSFER BETWEEN PIGMENTS IN PHOTOSYNTHETIC CELLS. *Giiti Tomita and Eugene Rabinowitch* 483

LETTERS TO THE EDITOR 501

INDEX TO VOLUME 2 503